DOCUMENT RESUME

ED 163 847 HE 010 657

TITLE Conceptions of Reality: A Study of Changes in University Students. R&D for Higher Education, 1978:7.

INSTITUTION Gothenburg Univ. (Sweden). Inst. of Education.; National Swedish Board of Universities and Colleges, Stockholm. Research and Development Unit.

PUB DATE 24 May 78

NOTE 8p.

AVAILABLE FROM National Board of Universities and Colleges, R&D Unit, P.O. Box 45501,

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.

DESCRIPTORS *Cognitive Objectives; Cognitive Style; College Students; Concept Formation; *Economics; *Engineering; Foreign Countries; Higher Education; Interviews; *Knowledge Level; Learning Theories; Longitudinal Studies; *Medical Education; Professional Education; *Psychology; Research Projects

ABSTRACT

A project, using a longitudinal survey, seeks to describe the cognitive content of the professional competence developed within the field of engineering, psychology, economics, and medicine. With the aid of several empirical studies, the project will hopefully clarify when and how changes occur in students' perceptions and patterns of thought, similarities and the effects of transition from studies to vocational activities. The project, planned to proceed from 1977 through 1983, will include analysis of the aims of the educational fields from a general viewpoint, compilation of and testing of interviews, and interviewing of students. The methodological approach of the study, which is closely related to cognitive theory and the psychology of learning, attempts to study educational effects in a different perspective and is based upon theoretical and methodological work carried out by the TIPS project. The approach is a search for educational effects in the form of qualitative characteristics and changes in the students' comprehension of concepts and principles. (SW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

UHÄ THE NATIONAL SWEDISH BOARD OF UNIVERSITIES AND COLLEGES

R & D for Higher Education

INFORMATION ON RESEARCH AND DEVELOPMENT FOR HIGHER EDUCATION

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

1978:7

CURRENT PROJECT

PROJECT TITLE: Conceptions of reality - a study of changes in university students

IN PROGRESS AT: Institute of Education, University of Göteborg, Fack, S-431 20 MÖLNDAL. Phone 031-87 80 00, ext 394

SCIENTIFIC LEADER: Professor Ference Marton

PROJECT LEADER: Ass Prof Lars Owe Dahlgren

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

National Board of Univ + Colleges

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

ED163847

BACKGROUND TO THE PROJECT

The INOM group, i e a research group for studies of learning and conceptions of reality, has existed at the Institute of Education at the University of Göteborg since 1970. The most distinctive feature of the group's work is an attempt to develop a method of describing the factual content of people's conceptions, whether those conceptions constitute the results of delimited learning occasions or are a product of more prolonged experience of life. Ever since it first emerged as an independent field of research, the psychology of learning has regarded knowledge as a quantitative variable which can be described in terms of "more" or "less", i e in the same way as a person's physical height, for example. We have tried to find an alternative to this quantitative approach by concentrating on describing what people actually learn. This approach resulted from work in the course of the project Study Skill and Learning, which lasted between 1970 and 1974. The same project also generated a methodological approach which made it possible to develop a qualitative analysis of knowledge. In other words, this project - referred to as the TIPS project - provides the theoretical and methodological background to the present project (Dahlgren 1975, Säljö 1975, Svensson 1976, Marton et al 1977, Marton & Svensson 1978).

HE 010 657

In the field of higher education , the TIPS project was followed by the ÄSS project (Investigations into the learning and teaching of basic concepts in economics), the final report on which will be presented during 1978.

In the course of this project a number of studies were carried out with the aim of testing whether a qualitative research approach in the psychology of learning could yield practical educational returns. A study of the comprehension by economics students of the concepts and principles dealt with in their education showed that examination results tended to overrate the students' actual knowledge (Dahlgren & Marton 1976, Dahlgren 1978 b). Prior and subsequent measurement of the economics students' comprehension of a number of so-called everyday economic concepts revealed that the effects on understanding of economic phenomena were very limited, while on the other hand a very palpable linguistic change occurred between the two interviews (Dahlgren 1978 a). A third study supports the thesis that concentration on a smaller number of concepts and principles can lead to improvements as regards the level of knowledge and the students' experience of meaningfulness (Dahlgren 1978 c).

FOCUS AND PREMISES OF THE PROJECT

Seen from our vantage point, the great majority of evaluative studies suffer from a grave deficiency in that they have principally focussed on quantitative descriptions of knowledge instead of shedding light on the importance of knowledge content as a cognitive or intellectual tool. The fact that the individual aspects chosen are quantitative means that they emanate from the above mentioned human image and from the assumption that people can be described using a set of values in a number of quantifiable variables. Internal criteria of change imply that goal descriptions and/or content descriptions are taken as the starting point when studying the effects of the education in question. Taken together, these two theoretical and methodological characteristics imply that the result of the evaluation can be expressed in terms of "more or less" of some property to be found in a description of the education. Thus the dimensions in which the educational effects can be captured are predetermined, and research work consists of rendering these dimensions operational and studying the actual result of the education with their aid. In our view, these aspects are instead to be sought empirically among the people involved in the education.

The theoretical and methodological approach represented by the present project to the study of effects of higher education can be briefly characterized as this type of a search for educational effects in the form of qualitative characteristics and changes in the students' comprehension of concepts and principles which are so vitally important to the students as to constitute essential ingredients of their conception of reality.

The empirical work which has so far been done in the project has been aimed at elucidating the content of scientific thinking and has also led to a more exhaustive and balanced picture of the field of "cognitive psychology" in which tensions are set up between a naively human attitude and the abstract perspective imparted by a

sophisticated scientific approach. One example of this addition to the original assumption is the emphasis on interdependence, i e the accomplished realization of the dependence and mutual relations existing between individual phenomena within the systems subjected to scientific study, be it in the context of nature, society or civilization. One of the economists taking part in the studies gave the following answer to the question, "What do you mean by competence within your subject field?":

> "It is the modus operandi of the economy which is such that everything is interconnected, many things are dependent on one another. One has to be able to see that dependence. One has to be able to think in a way which is not a question of 'A causes B, in which case C also results' and so on. One mustn't think on those lines, but instead that there is a connection between A, B and C which makes them all occur at the same time. Because of this, very many phenomena in reality turn out in the end to have different results from what one intuitively expected to begin with."

This realization of complexity is an expression of competence which also occurs among the teachers of psychology/education, medicine and technical subjects who have been interviewed so far. The emphases may vary, but reference is always made to the ability to analyse problems in interdependent systems. But the multifactoral trait of advanced scientific knowledge, i e the fact that cause and effect relationships, for example, often have to be described by indicating several causal factors, also creates an element of uncertainty on the part of students. A psychologist had the following to say:

> "...It is quite common to reach the point, eventually, where the students get confused and wonder what on earth they should do next or what they are supposed to be learning."

This quotation also serves as a reminder of the relativistic nature of knowledge (cf Perry 1970) and the realization that "everything is connected with everything else where people are concerned", together with the discovery that there is a number of rival perspectives in which the entire phenomenon can be regarded, produces in many people a confusion which is almost paralysing. Uncertainty in this sense is probably a highly essential aspect of the development of the student's competence, and its symptoms may be a sign of insight concerning the complexity which generally applies.

The overriding educational effects of a cognitive nature which are hoped for at different levels and which go by such designations as "critical thinking", "clear and orderly thinking", "analytical thinking" and so on, are not cognitive skills leading lives of their own. They are properties of the knowledge which a person possesses concerning the world around him. For this reason they cannot be studied in isolation either - for example, by means of prefabricated tests or questionnaires. The only way of studying educational effects of this kind must be to attempt a description of the manifestations of thinking as expressed in the views of im-

portant phenomena in the world entertained - for the purposes of this project - by different groups of post-secondary students at different stages in their education.

DISPOSITION OF THE PROJECT

So far work under the project has concentrated on finding the distinctive features of the four academic education routes which it is planned to include in the main study (engineering, psychology, economics and medicine). A series of interviews has been conducted involving 4-5 representatives of each course of studies. A corresponding number of students from the four study routes will be interviewed during the spring of 1978. The intention is for the rather loosely structured interview schedule employed in the teacher interviews to be recast in a more definitive form after the transcripts of the teacher interviews have been processed. This new version will then be tried out on the students, and then, after a further revision, it will be used as the interview schedule for the first main study, which will be carried out during the autumn of 1978.

Close co-operation is being maintained with the project "Long-Term Effects of Higher Education", in progress at the Department of Educational Research at the University of Umeå under the leadership of Professor Sten Henrysson and Dr Sigbrit Franke-Wikberg. The best way to describe the difference between the Umeå project and the Göteborg project is to say that the emphasis of the former is on the development of values and vocational images, while the Göteborg project focusses on a more specifically cognitive content. Both projects represent Sweden in FORM, a co-operative European project in which studies are being made of several aspects of the socialization effects of higher education, e g moral concepts and sex role concepts.

PURPOSE OF THE PROJECT

The purpose of the project is to attempt, by means of a longitudinal survey, to describe the cognitive content of the professional competence developed within a number of academic educational groups. Even though a great deal of the specific knowledge acquired at university or college is eventually lost, it is reasonable to assume that between three and five years of full-time study in a vocational course of higher education leave their mark in the form of certain fundamental views and ways of functioning which should be regarded as the true effects of education since they predominate over a longer period of time. It is hoped that, with the aid of several empirical studies of different kinds, this project will shed light on the following questions. When and how do changes occur in the students' perceptions and patterns of thought? Are there any similarities and dissimilarities between students taking different subjects and following different study routes? Are there any similarities and dissimilarities between students and teachers? What happens to graduates' views and patterns of thought during the transition from studies to vocational activity? Are there any essential differences between post-secondary students and graduates and, on the other hand, persons whose formal education has been of substantially shorter duration?

STRATEGY

The project began in 1977/78 and is planned to proceed by two three-year stages. Its relatively long duration is justified by the longitudinal approach, which involves following the progress of students for several years - up to four years in certain cases.

In keeping with the plan drawn up in the application documents, the project timetable can be described as follows.

Phase 1. 1977/78

Analysis of the aims of the education routes from a general viewpoint. Compilation of questions, problems and problem situations. Test interviews of teachers and students. Studies of literature.

Phase 2. 1978/79-1981/82

Interviews of the various groups of students and of a group of recently graduated students in connection with their transition to vocational activity and after a period of such activity. Visits to teaching sessions. Gradual processing of the material collected. Successive reporting.

Phase 3. 1982/83

General processing and analysis. Final documentation.

Work is now passing through phase 1. The timetable has been adhered to so far, and the empirical work which has been done has yielded several promising approaches to the problem concerning the nature of academic cognitive competence. The main studies will be able to start according to plan in the autumn of 1978. One more problem area has been added to those included in the original plan. This additional area concerns the conceivable effects of the transition from studies to vocational activity. At the meeting on the research area entitled "The Role of Higher Education in Society" held in November 1977, emphasis was placed on the importance of extending studies under this project to include the transition to working life. This transition will be taken into account in the project.

The three groups of questions indicated in the application for the first year, viz (a) general scientific questions, (b) questions specifically related to education and (c) questions concerning phenomena of everyday existence, look like merging into two groups of questions, because (a) and (c) have proved difficult to separate. However, this does not represent any change in the content of the project; it simply corresponds more closely to the reality transpiring from the pilot studies.

SIGNIFICANCE OF THE PROJECT

The main significance of the project is that it can convey an idea of the real effects of higher education. Outwardly the project takes the form of an evaluative study of properties and changes in the conception of the world around. But the methodological approach of the study and its close relation to cognitive theory and

the psychology of learning is such that it represents first and foremost an attempt to study educational effects in a different perspective.

The project should also be able to contribute to the debate which has begun concerning the balance between specialization and general competence as a problem of priorities in education policy. Within the sphere of higher education, an intense discussion is still in progress concerning the content and forms of studies. But this discussion still lacks a picture of what education in its present form really leads to. It is to be hoped that the project can contribute towards such a picture. Project orientation and the interdisciplinary approach are attractive goals for education authorities and teachers today, but it remains unclear what knowledge is being aimed at. The project can help to clarify matters in this field.

Lars Owe Dahlgren 1978-05-24

REFERENCES

Dahlgren, L.O. Qualitative differences in learning as a function of content-oriented guidance. Göteborg: Acta Universitatis Gothoburgensis, 1975.

Dahlgren, L.O. Application documents for the project entitled "Conceptions of reality - a study of changes in university students". Institute of Education, University of Göteborg. 1977. (In Swedish)

Dahlgren, L.O. Qualitative differences in conceptions of basic principles in Economics. A contribution to the discussion of the validity of examination results. Paper presented at the Fourth International Conference on Higher Education, Lancaster, G.B. 29th August - 1st September, 1978.

Dahlgren, L.O. Effects of university education on the conception of reality. Paper to be read at the IUT-conference in Aachen, F.R. Germany, July 26-29th, 1978. Reports from the Institute of Education, University of Göteborg. No 65, 1978.

Dahlgren, L.O. Teaching and learning in economics at university level, 1978. (c) /Forthcoming/

Dahlgren, L.O., Marton, F. Students' conceptions of subject matter. An aspect of learning and teaching in higher education. Studies in Higher Education, 1978, vol 3, no 1, 25-35.

Dahlgren, L.O., Franke-Wikberg, S. Changes of students' conceptions during university studies. Paper presented at the FORM-conference in Breukelen, Netherlands, March 1-5th, 1978.

Marton, F., Svensson, L. Studying conceptions of the world around us. Two contributions to methodology. Rapporter från Pedagogiska institutionen, Göteborgs universitet, no. 158, 1978. (In Swedish)

Marton, F., Dahlgren, L.O., Svensson, L., Säljö, R. Inlärning och omvärldsuppfattning. (The learner and his world.) Stockholm: Almqvist & Wiksell, 1977.(In Swedish)

Perry, W.G. Forms of intellectual and ethical development in the college years: A scheme. New York: Holt, Rinehart and Winston, 1970.

Svensson, L. Study skill and learning. Göteborg: Acta Universitatis Gothoburgensis, 1976.

Säljö, R. Qualitative differences in learning as a function of the learner's conception of the task. Göteborg: Acta Universitatis Gothoburgensis, 1975.